

ANTIBODY COMPLEXES AND METHODS FOR IMMUNOLABELING

**ABSTRACT**

5 The present invention provides labeling reagents and methods for labeling primary  
antibodies and for detecting a target in a sample using an immuno-labeled complex that  
comprises a target-binding antibody and one or more labeling reagents. The labeling  
reagents comprise monovalent antibody fragments or non-antibody monomeric proteins  
whereby the labeling reagents have affinity for a specific region of the target-binding  
10 antibody and are covalently attached to a label. Typically, the labeling reagent is an anti-Fc  
Fab or Fab' fragment that was generated by immunizing a goat or rabbit with the Fc  
fragment of an antibody. The present invention provides for discrete subsets of labeling  
reagent and immuno-labeled complexes that facilitate the simultaneous detection of multiple  
targets in a sample wherein the immuno-labeled complexes are distinguished by i) a ratio of  
15 label to labeling reagent, or ii) a physical property of said label, or iii) a ratio of labeling  
reagent to said target-binding antibody, or iv) by said target-binding antibody. This is  
particularly useful for fluorophore labels that can be attached to labeling reagents and  
subsequently immuno-labeled complexes in ratios for the detection of multiple targets.